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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/825,701

04/16/2004

Carlo Filippo Ratti

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7590

07/05/2006

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EXAMINER

BHAT, ADITYA S

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/825,701		RATTI ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Aditya S. Bhat		2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 and 14-20 is/are rejected.
- 7) ☒ Claim(s) 11 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

With regards to claims 1-10, 12, 14-20 the method and apparatus recited in the claimed invention does not produce a real life, real world, useful, concrete, and tangible result.

The claimed invention as a whole must accomplish a practical application. That is, it must produce a “useful, concrete and tangible result.” State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of “real world” value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

A process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See In re Warmerdam, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). See also Schrader, 22 F.3d at 295, 30 USPQ2d at 1459. Nor can one patent “a novel and useful mathematical formula,” Flook, 437 U.S. at 585, 198 USPQ at 195; electromagnetism or steam power, O’Reilly v. Morse, 56 U.S. (15 How.) 62, 113-114 (1853);

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Please view the following guidelines to overcome 35 U.S.C. 101 rejection made in this office action.

<http://www.uspto.gov/web/offices/com/sol/og/2005/week47/patgupa.htm>

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 15-16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Petrov et al. (USPUB 2002/0050988).

With regards to claim 1, Petrov et al. (USPUB 2002/0050988) teaches an apparatus for modeling and evaluating the characteristics of three-dimensional forms which comprises, in combination,

a deformable material that may be manually shaped to define a surface, (page 1, Paragraph 0009)

means for measuring the position of said surface to produced surface geometry data, (Page 1, Paragraph 0002)

means for processing said surface geometry data to generate result data which specifies one or more characteristics of said surface at different points on or near said surface, (page 3, Paragraph 0024) and

means for projecting an image corresponding to said result data onto said surface. (page 3, Paragraph 0024)

With regards to claim 2, Petrov et al. (USPUB 2002/0050988) teaches deformable material is supported on a rotatable turntable. (6 figure 1)

With regards to claim 3, Petrov et al. (USPUB 2002/0050988) teaches deformable material is selected from a group consisting of clay, putty, plasticine, beads, and rectilinear blocks. (page 3, Paragraph 0024)

With regards to claim 4, Petrov et al. (USPUB 2002/0050988) teaches deformable material is a plastic material that can be shaped and once shaped retains its shape. (page 3, Paragraph 0024)

With regards to claim 5, Petrov et al. (USPUB 2002/0050988) teaches means for measuring is a three-dimensional optical distance measuring device. (2; figure 1)

With regards to claim 6, Petrov et al. (USPUB 2002/0050988) teaches means for measuring is a laser scanner. (page 1, Paragraph 0009)

With regards to claim 7, Petrov et al. (USPUB 2002/0050988) teaches the laser scanner is a triangulation based laser scanner that includes means for directing laser light at different positions on said surface and means for converting reflected laser light from said surface into said surface geometry data. (page 3, paragraph 0027)

With regards to claim 8, Petrov et al. (USPUB 2002/0050988) teaches means for projecting an image corresponding to said result data is located at the same optical origin as said laser scanner. (figure 1)

With regards to claim 9, Petrov et al. (USPUB 2002/0050988) teaches a coated mirror through which said laser scanner illuminates said surface and which reflects said image from said projector onto said surface so that said laser scanner and said means for projecting have the same optical origin. (16; figure 1)

With regards to claim 15, Petrov et al. (USPUB 2002/0050988) teaches means for processing further comprises means for representing said result data in a standard graphical display format and for thereafter processing said result data in said standard graphical display format into image data supplied to said means for projecting an image corresponding to said result data onto said surface. (figure 1)

With regards to claim 16, Petrov et al. (USPUB 2002/0050988) teaches surface geometry data comprises an array of values each of which specifies the elevation of said surface at a particular location in two-dimensional array of locations. (page 25, Paragraph 0282)

With regards to claim 20, Petrov et al. (USPUB 2002/0050988) teaches means for storing said result data as a voxel dataset representing the characteristics of said surface and a three dimensional region surrounding said surface, means for measuring the position of a second surface, and means for projecting an image corresponding to a selected portion of said voxel dataset defined by the position of said second surface relative to said first surface (figures 19c-d)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

With regards to claim 1, Petrov et al. (USPUB 2002/0050988) teaches an apparatus for modeling and evaluating the characteristics of three-dimensional forms which comprises, in combination,

a deformable material that may be manually shaped to define a surface, (page 1, Paragraph 0009)

means for measuring the position of said surface to produced surface geometry data, (Page 1, Paragraph 0002)

means for processing said surface geometry data to generate result data which specifies one or more characteristics of said surface at different points on or near said surface, (page 3, Paragraph 0024) and

means for projecting an image corresponding to said result data onto said surface. (page 3, Paragraph 0024)

Petrov et al. (USPUB 2002/0050988) does not appear to teach characteristics that conform to the Digital Elevation Model for representing topographical data, and means for processing said surface geometry data comprises means for selecting and executing a routine in a library of routines for processing DEM data into result data and the surface is a topological landscape surface.

Damron (USPUB 2003/0154060) teaches characteristics that conform to the Digital Elevation Model for representing topographical data (page 3, Paragraph 0030),

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and means for processing said surface geometry data comprises means for selecting and executing a routine in a library of routines for processing DEM data into result data (page 1, Paragraph 0002).

It would've been obvious to one of ordinary skill in the art at the time of the invention to modify the Petrov et al. (USPUB 2002/0050988) invention to include the above cited elements taught by Damron (USPUB 2003/0154060) in order to arrive at the claimed invention in order to access improved hydrologic and hydraulic analysis for plain mapping where DEM data are required. (Page 3, Paragraph 0039).

***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 11 and 13:

Claims 11 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to overcome the 101 rejection and include all of the limitations of the base claim and any intervening claims.

The primary reason for the allowance of claim 11 is the inclusion of the means for processing generates changing result data in real time as said surface geometry is reshaped or moved, and said means for projecting an image is a video projector that displays a changing image corresponding to said changing result data. It is this feature found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 13 is the inclusion of the means for processing further comprises means for representing said result data in a standard



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graphical display format and for thereafter processing said result data in said standard graphical display format into image data supplied to said means for projecting an image corresponding to said result data onto said surface. It is this feature found in the claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached notice of reference cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aditya S. Bhat whose telephone number is 571-272-2270. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aditya Bhat  
June 21, 2006

BRYAN BUI  
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read 'Bui', with a stylized flourish extending to the right.